R0056
S92 0056

BURNS

Facilities for the Physically Disabled on the Olympic National Forest

An Inventory and Assessment of the Developed Recreation Facilities on the Olympic National Forest and a Recommended Program for Modification of these Facilities so they can Accommodate the Physically Disabled.

by R. Robert Burns
Recreation and Lands Staff - Olympic N.F.
Olympia, WA. 98507 Feb. 1981

- ADDENDUM -

As a result of this paper it became apparent there was a lack of information concerning what facilities currently exist that can accommodate the physically disabled. As a first step to remedy this the latest Olympic campground information brochure (copy enclosed) indicates where there are facilities that will accommodate wheel chairs.

This information will also be shown on the next printing of the Forest Recreation Map.

AN INVENTORY AND ASSESSMENT OF THE DEVELOPED RECREATION FACILITIES ON THE OLYMPIC N.F. AND A RECOMMENDED PROGRAM FOR THE MODIFICATION OF THESE FACILITIES SO THEY CAN ACCOMMODATE THE PHYSICALLY DISABLED

By

R. Robert Burns
Recreation and Lands Staff
Olympic National Forest
Olympia, Washington 98507
February, 1981

ACKNOWLEDGEMENTS

Being a neophyte in the evaluation of recreation facilities for the physically disabled, I had the opportunity to draw upon the knowledge and concerns of a number of special people.

Jay Sweet, Olympic N.F. Personnel Office, for an on-the-ground insight into the barriers that exist for the disabled recreationist. Bob Thurston, State of Washington D.S.H.S., for some valuable tips and suggestions on whom to contact. Jack Michels, Disabled American Veterans, for some personal recommendations, thoughts, insights, and sources of information. Syd Jacobs of the Olympic National Park for her perspective and an estimate on disabled use at the Park headquarters.

Without their assistance, this report would never have considered many factors or been developed in its present format.

Thanks.

TABLE OF CONTENTS

	Page
ABSTRACT	i
INTRODUCTION	1
MAP OF FOREST	1A
LITERATURE REVIEW	2
METHODOLOGY	5
Inventory and Assessment	5
Evaluation for Modification	5
Development of Alternatives	6
Evaluation of Alternatives	6
Selection of Preferred Alternative	9
Priority Setting	10
SUMMARY	12
LITERATURE CITED	13
APPENDIX	14

ABSTRACT

An inventory and assessment of the developed recreation facilities on the Olympic N.F. and a recommended program for the modification of these facilities to accommodate the disabled.

Most of the recreation facilities within the Olympic N.F. were constructed during an era when the needs of the disabled were not considered. The objective of this paper is to display the current situation and to develop a recommendation for increasing the usability of the recreational facilities by the disabled.

An inventory and assessment of the facilities within the developed recreation sites shows that with the exception of Coho Campground and two information centers, none of the sites have a full complement of facilities to accommodate the disabled. The ability to modify these facilities was categorized into four levels to display where the greatest opportunities exist.

Based on the physical opportunity to modify an individual facility or group of facilities, historical use, adjacent sites with facilities to accommodate the disabled, cost, and potential use by the disabled, a number of alternatives were evaluated and a preferred alternative selected.

Implementation of the preferred alternative will be accomplished through the Capital Investment Program, use of the Human Resource Program, volunteers, and ongoing project maintenance and improvement.

INTRODUCTION

Construction of developed recreation facilities on the Olympic Peninsula began shortly after the establishment of the Forest in 1897. The first campgrounds appeared in such popular places as Lake Cresent, Lake Quinault, Dosewallips, and Soleduck Hot Springs. With the establishment of the Olympic National Monument and later reclassification as a National Park, and subsequent expansion, only a few of these early campgrounds are still within the Olympic N.F. Needless to say, the image of the recreationist of that day was generally that of the rugged outdoor type, thus there was little or no provision made for the disabled.

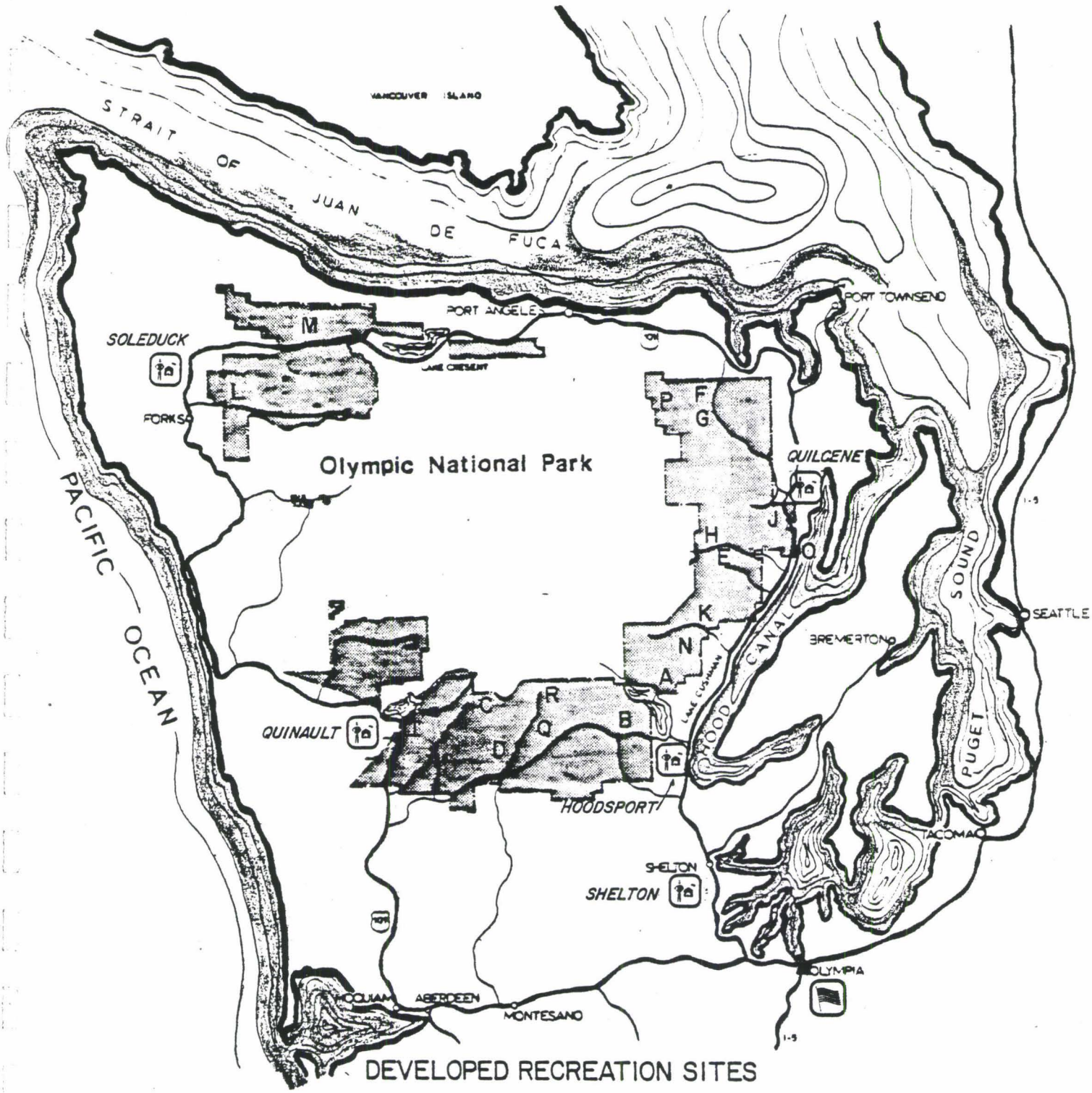
Recreation construction was basically non-existent for a period of years prior to the Great Depression and the ensuing C.C.C. Program. This was the hayday for recreation construction on the Olympic N.F. Many of the existing campgrounds, picnic areas, vistas, etc. were developed during this era. Again the typical view of the recreationist was that of an able-bodied, out-of-doors type. Again little or no provision was made to accommodate the disabled. In fact, the very design of many facilities created barriers to the disabled. Many of these facilities exist to this day as monuments which require substantial alteration if they are to become usable to the disabled.

With the outbreak of WW II the development of new recreation facilities ceased until the 50's and 60's. A flurry of construction brought a few new campgrounds, but for the disabled there was no significant change in the design of facilities.

Not until the mid-1970's and the construction of Coho Campground on Lake Wynoochee did the philosophy of providing for the disabled become apprarent. Coho Campground (46 units) and picnic area (12 units) were designed and constructed with the disabled in mind. Parking spurs and trails are level or have gentle grades. Restrooms provide for the disabled, and access to and around the individual units is excellent.

Since the construction of Coho Campground, no other new facilities have been completed. The trailhead parking and restrooms at the Quinault Rain Forest is nearing completion and will provide for the disabled. The offices at the Hoodsport and Soleduck Ranger Districts provide for ready access and utilization by the disabled. Sporadic improvement has taken place within a number of developed sites on the Forest. Where this has occurred, there either has been no modification of the facilities to accommodate the disabled, or the modified facility stands alone without the necessary full complement of facilities; i.e., a number of units within a site may be reconstructed to accommodate the disabled, but the campground has standard vault toilets which are unusable by the disabled.

As a result of this development pattern, the Olympic N.F. now has twenty-four (24) developed recreation sites and six (6) administrative offices with a very limited capability to provide for the disabled, be they aged, infirmed, or physically disabled.



DEVELOPED RECREATION SITES

OLYMPIC NATIONAL FOREST ▬ RANGER STATION SUPERVISORS OFFICE

- A Big Creek
- B Brown Creek
- C Campbell Tree Grove
- D Chetwoot
  Coho
- E Collins
  Interrorem
- F Dungeness Forks
- G East Crossing
- H Elkhorn
- I Falls Creek
  Gatton Creek & Willaby
- J Falls View
  Mt. Walker Viewpoint & Rainbow
- K Hamma Hamma
- L Klahanie
- M Klahowya
- N Lena Creek
- O Seal Rock
- P Slab
- Q Tenus
- R Wynoochee Falls

LITERATURE REVIEW

While recreation use of the Olympic National Forest dates back to its origin as the Olympic Forest Reserve in 1897 (29 stat 901) and its subsequent name change to the Olympic National Forest in 1907 (34 Stat 1271), there is very little, if anything, published on the disabled recreationist and the Olympic N.F.

Since the mid 1960's and early 1970's there has been a growing awareness of the need to provide and adapt recreation facilities for the disabled. This may be closely related to the 1963 passage of P.L. 88-29 which "...declares it desirable that all American people of present and future generations be assured adequate outdoor recreation resources and that it is desirable for all levels of Government and private interest to take prompt and coordinated action...". Emphasis to this really developed with the enactment of the "Architectural Barriers Act of 1968" (P.L. 90-480) and the "Rehabilitation Act of 1973" (P.L. 112). The State of Washington also passed the "State Building Code Act" (R.C.W. 70.92) which is similar to the Federal "Architectural Barriers Act".

Section 5 of the Architectural Barriers Act is a key in the planning, design, and construction of structures as it requires that "every building designed, constructed or altered after the effective date of a standard design issued under this Act which is applicable to such building, shall be designed constructed, or altered in accordance with such standard." This definitely establishes the requirement for the modification of our information centers and major structures within our developed sites. The development of the site itself and the non-structural facilities are generally left to the discretion of the unit manager; however, Section 504 of the Rehabilitation Act does require that programs as well as facilities be available. Thus, program accessibility includes making all activities within a given recreation area usable by handicapped persons. (U.S.D.I., H.C.R.S. 1979). The direction for the design and development of National Forest sites and facilities is to provide for use by the physically disabled (U.S.D.A., F.S. 1973).

The need to provide facilities for the disabled is somewhat dependent upon the population of disabled within the community as well as the percent of the recreating public. In addressing the handicapped population, the State of Washington S.C.O.R.P. (1979) indicates that as a guide approximately six percent of the work force is handicapped, and ten percent of the State's total population is handicapped.

These figures reflect the total range of disabilities including seeing, hearing, physical, and mental. Data on the exact percentage of the population that is physically handicapped is somewhat limited. The Washington State Department of Social and Health Services (Burt Gary, telecon) suggested a statewide figure of 2.8% of the population would closely represent the percentage physically disabled. A breakdown by area or county was not available to them. Of the total disabled population within the State, the Washington State S.C.O.R.P. (79) indicates approximately 62% is located within the lower Puget Sound Basin, State Planning Districts 1, 4 and 5. Based on State D.S.H.S. (Burt Gary, telecon), this information is slightly higher than the 60% of the State population living within the same area. The reason for the higher percentage of disabled within the Greater Puget Sound Area is probably due to the number of facilities in the Seattle-Tacoma area that are designed to accommodate the disabled, plus the available rehabilitation facilities. (Personal conversation, Jack Michels - Disabled American Veterans)

No data has ever been gathered concerning the disabled user within the recreation sites of the Olympic N.F. Based on personal observation at the Olympic National Park Headquarters in Port Angeles, it was estimated that no more than 1% of the total visitors at that location were physically disabled. (Telecon - Syd Jacobs, O.N.P.) The reason for this low use may relate closely to the general knowledge and/or belief that the National Forest Recreation Sites do not accommodate the disabled, or if they do, it is not well known. (Telecon - Bob Thurston, State D.S.H.S.)

While the percentage of the population that is physically disabled is relatively low, there are factors that have contributed to recent increases in the total number of disabled persons. Servedio (1979) lists these as:

1. Drugs and operating techniques which saved more veterans in recent wars.

2. Greater mobility has increased the percentage of accidents and injuries.

3. Overall population growth.

4. Increase in leisure and leisure sports and activities has increased the percentage of accidents.

5. Better education and better medical assistance produces longer life with consequent disability from chronic problems.

Major barriers to use of recreation facilities by the disabled are obviously the architectural barriers. Nesbitt and Hippolitus (1977) indicates that these barriers actually represent only the symptom. The real reason for exclusion of handicapped people are many and complex and include: the recreation provider does not fully understand or accept his responsibility to provide for the handicapped; providing for the handicaped on a cost effective basis often clouds the issue; the lack of, or availability of, designs for structures and recreation facilities. Another reason is with the handicapped users themselves. They are, for the most part, involved in an everyday struggle for survival and are not demanding services from the recreation provider.

While this paper will not deal directly with the reasons, it will deal with the symptom. Architectural barriers, poor site design and facilities with no provision for the disabled can be overcome. Standards and specifications for design of building and facilities for the physically handicapped have been standardized and are readily available. (American National Standards Institute, Inc. 1980) These standards, or modifications of them, appear in building codes used throughout the U.S (International Conference of Building Officials, 1979).

Development of standards and specifications for the outdoor recreation sites have been prepared by the U.S.D.I., H.C.R.S. (1980). The Easter Seal Society (1978) also developed a guideline for barrier free design which addresses many facilities found in a recreation site. Jacque Beechel (1975) developed a handbook to be used in the preparation of interpretation for handicapped persons.

Specialized project design and development such as the U.S.D.A., Forest Service (1975), Trout Pond Recreation Area in Florida and the recommendations of the Human Resource Center (1977) for modification of New York State Parks, are excellent examples of new standards being used in outdoor recreation. Jerry Helbig (1978) provided criteria that must be considered prior to the selection of a recreation site and construction of that recreation facility.

To segregate or not segregate the disabled recreation user by developing modified facilities away from the general recreationist has been somewhat of an issue for years. The U.S.D.I., H.C.R.S. (1979) in its third Nationwide Recreation Plan states "...the most current approach for servicing these people involves a "continum of services"...". U.S.D.I., H.C.R.S. (1980) recommends that outdoor recreation facilities be designed for the entire population so to encourage the restricted person to become part of the mainstream of society. Michael Sava (1980) extends this concept to the use of wheelchairs on the standard back-country trail. Jay Sweet (U.S.D.A., F.S. - personal contact) stated that there is a preference by the disabled recreationist to be with the general recreationist and that it is not as important to build special facilitites for the disabled, as it is not to build barriers. Campgrounds and facilities can and will be used by the disabled if properly planned, designed and constructed.

METHODOLOGY

Inventory and Assessment

All twenty-four developed recreation sites on the Forest were personally visited or information was provided by Ranger District personnel. Each unit and facility within that site was inventoried and assessed to determine its current usability by three categories of disabled users.

-Aged. This includes anyone who has basically full control and use of their body, arms and legs but due to advanced age, have lost enough of their agility and strength that walking up a slope or over uneven ground is not possible or is extremely difficult. Factors controlling use will be slope, smoothness of terrain and freedom from obstacles.

-Requiring crutches, cane or walker. An individual in this category could be of almost any age. The disability could be temporary or permanent. The ability to traverse slopes, negotiate uneven ground and access buildings can vary substantially. Key to use of a site or facility will be the firmness of the ground, relatively smooth surface, clearance and freedom from obstacles.

-Requiring wheelchair. This is the most restrictive category. The individual requiring a wheelchair may be able to move themselves about or require assistance. They may be of any age, and the condition may be either temporary or permanent. No matter what age or ability to move themselves about, the requirements are basically the same. Factors limiting use are slope, even terrain, firm surface, clearance for the wheelchair and occupant. If a site or facility can accommodate this category, it can accommodate all other caterogies.

The inventory and assessment of all sites and facilities were recorded on a format developed for this project.

Evaluation and Modification

Recorded in this same format was the evaluation of the site and/or facility to be modified to accommodate each of the three categories of disabled. The opportunity to modify sites and facilities was placed in four categories based on a combination of the physical opportunities and the cost to accomplish the modification. Generally these will correlate very closely.

-High. This would include minor improvements such as additional widening of access trails, removal of roots from within the unit, minor leveling, or change of table-top planks. These can usually be done with a minimum expenditure.

-Medium. Usually limit to one - removal of stumps, substantial clearing and grubbing, limited building modification or trail relocation.

-Low. Combination of two or more work items involving extensive unit, site, or facility modification that could require a substantial outlay of cash.

-None. No opportunity to modify the unit or facility due to physical or structural limitations.

A sample of the inventory, assessment and evaluation for all sites and facilities can be found in the Appendix, Exhibit A.

Development of Alternatives

While there are an infinite number of alternatives that could be addressed, it seems desirable to address only those that are logical, feasible, yet portray a true range of alternatives. Given the existing situation on the Olympic N.F., the following alternatives offer a range of options to be considered:

A. Continue the existing practice of providing accommodations for the disabled only when new facilities are constructed or extensive reconstruction is planned.

B. Modify all facilities at all sites to accommodate the disabled.

C. Fully develop a limited number of sites to accommodate the disabled.

D. Within all sites, develop a limited number of units and facilities to accommodate the disabled.

E. Develop a number of units and facilities at selected sites to ensure usability by the disabled.

Evaluation of Alternatives

Evaluation criteria by which the alternatives were evaluated are as follows:

1. Provides for accessibility to all information centers. (Must)

2. Ensures a full range of sites and facilities are available and usable. (Must)

3. Cost effective. (Want)
   (Based on typical costs, Appendix, Exhibit B)

4. Result in minimum physical modification of site. (Want)

5. Has a high probability of program accomplishment. (Want)

Alternative A. Continue existing practice. This alternative will continue to improve on the existing situation as various projects are implemented. However, it will not provide a systematic approach to correcting the current situation. There is no assurance that any additional information centers will become accessible to the disabled. Of greatest concern is that while facilities and units may be modified to accommodate the disabled, there is no assurance that companion facilities will also be modified.

Cost effective. While the modificiation of an individual facility may be cost effective, it would not be at all cost effective if companion facilities were not brought up to standard at the the same time.

Physical Modification. In all likelihood there would be limited physical modification of the site with this alternative as projects often would be selected based on cost which directly relates to site modification.

Probability of accomplishment. While a numbe of facilities, units or sites may be modified, there is the question of accomplishment as there is no overall direction to the program.

Evaluation Summary

1. Accessibility to all information centers -- no
2. Availability of full range of sites -- no
3. Cost effective -- no
4. Minimum physical modification of site -- yes
5. Probability of accomplishment -- no

Alternative B. Modify all facilities at all sites. This would be the ideal situation; it would ensure that any disabled person could utilize any recreation site on the Olympic N.F. Also all information centers would be fully accessable. The cost effectiveness of this alternative is somewhat questionable as a percentage of units within most campgrounds would require extensive modification. Total cost in order to make them accessible to the disabled would be very high. A significant modification of the character of the site could occur. With the high cost and historical low level capital investment program it is unlikely that the objective of this alternative could be met.

Summary

Accessibility to all information centers - Yes
Availability of full range of sites - Yes
Cost effective - No
Minimum physical modification of site - No
High probability of accomplishment - No

Alternative C. Fully develop a limited number of sites. With this alternative there would be the modification of all information centers and the selection and full development of 3-5 campgrounds at strategic locations on the Forest to ensure the opportunity for the disabled to recreate in a Forest environment. Within these selected sites, all of the facilities would be modified to provide for the disabled. Once fully developed for the disabled, these sites would be identified in various publications and brochures. Signing would be done at the entrance and within the site.

Although all facilities within a site would accommodate the disabled and a cross-section of recreation sites would be represented, it is doubtful if the entire range of sites would be available.

By selecting sites that currently have facilities for the disabled and ones that can easily be modified, the total cost of this alternative could be reasonably low as would the cost per PAOT day. As costs are often linked closely to the extent of site modification, it is envisioned that there would be a limited physical modification of the site with this alternative.

By selecting sites that currently have facilities for the disabled and those with low modification costs the probability for success is moderately high.

Summary

Accessibility to all information centers	- Yes
Availability of full range of sites	- Yes
Cost effective	- Yes
Minimum physical modification of site	- Yes
High probability of accomplishment	- Yes

Alternative D. Develop a limited number of facilities within all campgrounds. In this alternative all information centers would be made accessable to the disabled, and within all sites a number of units and support facilities would be modified to accommodate the disabled. In order to maximize their usability these units and facilities would be within a selected section or module. By doing this, a full range of sites and facilities would be available. Cost per PAOT day provided would be relatively low as the section (module) selected would probably contain units and facilities requiring the least work or are already useable by the disabled. Cost per RVD could be high at small, remote sites that currently receive low use. The total cost would be relatively high as facilities in all sites would have to be modified .

The probability of physical site modification would be low because of the ability to be selective in the section (module) to modify. The probability of accomplishing this alternative is only fair due to the cost and impact of modifying sites and facilities in all campgrounds.

Summary

Accessibility to all information centers	- Yes
Availability of full range of sites	- Yes
Cost effective	- Yes
Minimum physical modification of site	- Yes
High probability of accomplishment	- No

Alternative E - Modify the units and facilities within a section (module) of selected sites. Under this alternative, most developed recreation sites would have a section or module modified to accommodate the disabled. The only sites not specifically targeted for modification of the existing units and facilities would be the small, remote sites that have a historical pattern of low use. Other sites that could fall out of the selected group would be those where long term retention is questionable, or extremely high cost would be involved in the modification and a similar site is located nearby.

All information centers would be modified to permit access by the disabled. Cost per PAOT would be low as the section or module selected would contain units and facilities requiring minimum modification. The cost per RVD would also be relatively low as the low use, marginal sites would not be included.

Potential for accomplishment is high, assuming a continuation of the capital investment program and some elements of the human resource program.

Summary

Accessibility to all information centers	- Yes
Availability of full range of sites	- Yes
Cost effective	- Yes
Minimum physical modification of site	- Yes
High probability of accomplishment	- Yes

Selection of Preferred Alternative

By arraying a range of alternatives it becomes apparent that while it may be desireable to ensure that all developed recreation sites and information centers are totally useable by the disabled it is feasible to provide the full range of opportunities with a limited expenditure. Key to accomplishing this is the selection of the right combination of sites, and units and facilities (section - module) within those sites.

In selecting the preferred alternative and developing the long term direction for the Olympic N.F., it is imperative that the overall objective is kept in clear perspective. We must be responsive to the needs of the disabled. We must as a minimum, provide access to all information centers and to a full range of developed recreation opportunities as provided by the Olympic N.F. While accomplishing this objective we must strive to be as cost effective as possible, minimize the impact on the land itself and be assured that our plan can be accomplished.

With this in mind the comparative evaluation of each alternative can be done rather easily.

ABILITY TO MEET EVALUATION CRITERIA

CRITERIA	ALTERNATIVES				
	A	B	C	D	E
1. Accessibility to information centers	No	Yes	Yes	Yes	Yes
2. Full Range of Sites	No	Yes	No	Yes	Yes
3. Cost Effective	No	No	Yes	Yes	Yes
4. Minimum Site Impacts	Yes	No	Yes	Yes	Yes
5. Probability of Accomplishment	No	No	Yes	No	Yes

Alternative "A" the existing situation is by far the least desirable alternative. Due to a lack of direction the continuation of this program will fail to meet the two "must" criteria and two want criteria. The one criteria that was met resulted from a combination of very little happening and the selection of projects of opportunity, which usually are low cost, low impact projects.

Alternative C while meeting 4 of the 5 criteria failed to meet one must criteria. At an initial glance this would appear as a viable alternative. However, due to the geography of the Olympic Peninsula the development of all the units and facilities within a few selected sites would result in large "holes" or "gaps" in the effort to provide for the disabled. These "holes" or "gaps" are both spatial and in "kind" of site.

While being cost effective, per PAOT day, to modify an entire site it would not be cost effective per RVD as only a small percentage of the units and facilities would be used by the disabled at any one time.

Alternative B is the idealistic alternative, it would provide for the disabled at all sites and at all units and facilities. Although it meets the must criteria, it is doomed to failure as it is too ambitious, too costly, and would result in extensive impacts on the soil, vegetation and overall character of most sites.

Alternatives D and E are quite similar in concept with Alternative E not making provision for the disabled at low use remote sites of questionable future. Because these few sites were not included for rehabilitation it becomes more likely to be accomplished. While both alternatives appear to be cost effective, Alternative E would be somewhat better as the cost of modifying the facilities at the small sites are greater per PAOT day and RVD than at the larger, higher use sites.

Using the evaluation criteria, and assumptions that were developed, Alternative "E" is the selected alternative.

As pointed out in the development and evaluation of the alternatives the selection of sites, modules, units and facilities were "typical" developed facilities. Costs for these were than developed to reflect the typical situation. (Appendix, Exhibit C) With Alternative E as the selected alternative, it has been further developed to recommend specifically, by site, which module of units and facilities should be developed for the disabled (Appendix, Exhibit D) and the costs further refined to reflect the actual situation by site. (Appendix, Exhibit E)

Priority Setting

Establishment of priorities has always been key in the development of any program. This program is no different. In setting of priorities a number of criteria must be addressed. The criteria used in setting priorities for the program are quite similar to those used in evaluation of the alternatives. They are:

Provide access for the disabled at all information centers.

Provide a geographical cross-section of sites.

Provide a range of kind of site.

Select projects to ensure a full complement of facilities.

Select sites with historical or projected high use.

Select sites nearest to metropolitan areas and/or major transportation routes.

Selects projects with favorable cost per PAOT day and/or RVD.

Using these criteria, the selected sites were prioritized into three groups. Generally, the sites within a given group are all of nearly equal importance and all projects within a given group should be completed prior to starting projects in the next group. This prioritizing is shown in Appendix, Exhibit F, and should become the basis for selecting projects to develop facilities for the disabled.

In reality these priorities often will have to be weighed with other development priorities such as improvement of water systems, roads, etc. While these may appear as competitive programs they can be complementary if viewed as an opportunity. The improvement of a water system, road or trail is an opportunity to add the little extra to make that facility available to the disabled. With the establishment of a program with priorities set, the development of facilities for the disabled can easily be blended into any capital investment or maintenance program.

SUMMARY

Throughout the history of recreational development on the Olympic N.F. there is no known record of a forest program that addresses the needs of the disabled. National and Regional direction has been written directing the Forests to provide for the disabled when new facilities are constructed. This paper is a first cut at developing Forest-wide direction and priority setting.

Through the development of five alternatives this paper displayed an array of options which could be developed into forest direction. The evaluation of these alternatives against a set of given criteria resulted in the selection of an alternative which was than developed in greater detail.

While this paper has resulted in the development of a selected alternative and establishment of initial direction and priorities for the Forest, it by no means represents a "final" product. The determination of sites, modules, units, and facilities to be developed for the disabled is a subjective process. A given facility may be viewed differently on any given day due to additional information, weather conditions, viewing perspective, changed conditions on the ground, etc.

A follow-up evaluation of the units and facilities scheduled for renovation should be done prior to any project development. Periodic evaluations should be done to keep the proposed program current. The frequency of evaluation will depend upon the extent of the activity within the program.

While this paper addresses the needs of the physically disabled, there are substantial numbers of other special populations which are not addressed. The blind and deaf are two examples of these other special populations. I recommend that these other populations be addressed in a future paper.

LITERATURE CITED

1) American National Standards Institute, Inc. 1961 (Rev. 1971). "Specifications for Making Buildings and Facilities Accessible and Usable by Physically Handicapped People".

2) American Alliance for Health, Physical Education and Recreation, Washington, D.C. 1970. "Making Physical Education and Recreation Facilities Accessible to All: Planning, Designing, Adapting".

3) Beechel, Jacque, 1975. "Interpretation for Handicapped Persons".

4) Easter Seal Society. 1978. "An Illustrated Handbook for Barrier Free Design"

5) Helbig, Terry. Journal of Forestry. 1978. "Wheelchairs in the Woods".

6) International Conference of Building Officials. 1979. "Uniform Building Code".

7) Nesbitt and Hippolitus. Outdoor Recreation Action 45, 1977. "Recreation and Park Barriers to the Handicapped".

8) Servedio, W. Parks and Recreation. 1979. "Eliminating Mobility Barriers in Recreational Areas and Facilities".

9) Trends. 1974. "Design Standards for Providing Accessibility".

10) U.S. Department of Agriculture, Forest Service Manual 2330. 1973. "Developed Sites in Public Sector".

11) Wakulla Ranger District, Appalacicola N.F., U.S. Forest Service, Dept. of Agriculture. 1975. "Trout Pond Recreation Area for the Handicapped".

12) U.S. Forest Service, Dept. of Agriculture. 1980. "Specialized Recreation Facility Inventory".

13) U.S. Dept. of Interior, Heritage Conservation and Recreation Service, Lake Central Region, Ann Arbor, Michigan. 1980. "A Guide to Designing Accessible Outdoor Recreation Facilities".

14) U.S. Dept. of Health, Education and Welfare. 1975. "Recreation and Handicapped People: A National Forum on Meeting the Recreation and Park Needs of Handicapped People".

15) Heritage Conservation nd Recreation Service, U.S. Dept. of Interior. 1979. "The Third Nationwide Outdoor Recreation Plan Appendix III".

16) "Washington State Comprehensive Outdoor Recreation Plan. 1979".

APPENDIX

Exhibit A	Sample-Inventory, Evaluation and Assessment Format
Exhibit B	Cost to Modify Typical Unit and Support Facilities
Exhibit C	Cost by Alternatives
Exhibit D	Summary of Module and Facilities to be Modified
Exhibit E	Refined Cost, by Site, of Implementing Alternative E
Exhibit F	Priorities for Implementation

OLYMPIC NATIONAL FOREST

Exhibit A

INVENTORY & ANALYSIS
OF RECREATION FACILITIES
TO ACCOMMODATE THE DISABLED

SITE Collins

BACKGROUND INFORMATION

Located within the Duckabush River Drainage, approximately 1-1/2 miles inside the Forest Boundary. Campground located on flat between the road and river. Overstory vegetation: red alder, big leaf maple, black cottonwood, Douglas-fir, and western hemlock. Understory: vine maple, western hemlock, sword fern. The site was initially developed in the 1950's.

SUMMARY OF INVENTORY & ANALYSIS

Within the campground there are a number of units that could easily be modified to accommodate the disabled as well as a number of units that would be very costly to modify. The replacement of the standard vault toilets with a modified vault is the key to making this site usable.

ALTERNATIVES

1. Leave as is.
2. Modify selected sites and one set of vault toilets.
3. Modify all units and facilities. (Difficult and expensive)

RECOMMENDATIONS

Modify 3-4 units in a module in the area of Units #2 and 3.

(1) Improve surfacing on parking spur and access to site.

(2) Surface unit area.

(3) Replace tabletop planks with one foot longer planks.

(4) Improve surfacing on access to pitcher pump and build up to eliminate concrete lip.

(5) Replace existing vault toilets (2) with modified vault.

OLYMPIC NATIONAL FOREST

DATE 12-11-80

SITE Collins

SITE # 3.0

SITE KIND 41.1

INVENTORY OF FACILITIES
TO ACCOMMODATE DISABLED

LEGEND

A - Aged
C - Crutch-Walker
W - Wheelchair

H - High
M - Medium
L - Low
N - None

UNIT	PARKING SPUR	UNIT ACCESS	TABLE	FIREPLACE FIRE RING	UNIT AREA & SURFACE	REMARKS
1	A C W-H	A C W-H	A C W-H	A C W-H	A C-H W-H	Ground within unit area is soft. Require more stable surface for C&W.
2	A C W-H	A C W-H	A C W-H	A C W-H	A C-H W-H	Similar to #1
3	A C W-H	A C W-H	A C W-H	A C W-H	A C W-M	
4	A C W	A C W-H	A C W-H	A-H C-H W-H	A C-H W-H	No fireplace. Ground soft.
5	A C W-H	A-M C-L W-L	A C W-H	A C W-H	A-L C-L W-L	Poor opportunity to modify.
6	A C W-H	A C-L W-L	A C W-H	A C W-H	A C-L W-L	Poor opportunity to modify.
7	A C W	A C W-H	A C W-H	A C W-H	A C-M W-M	Need to stabilize ground within unit.
8	A C W-H	A C W-H	A C W-H	A C W-H	A C-H W-L	Group unit 3 tables. Parking on grade.
8a	A C W-H	A C W-M	A C W-H	A C W-H	A C W-M	
9	A C W-L	A C-M W-L	A C W-H	A C W-H	A C-H W-L	

OLYMPIC NATIONAL FOREST

DATE 12-11-80

SITE Collins

SITE # 3.0

SITE KIND 41.1

INVENTORY OF FACILITIES
TO ACCOMMODATE DISABLED

LEGEND

A - Aged
C - Crutch-Walker
W - Wheelchair

H - High
M - Mediu
L - Low
N - None

UNIT	PARKING SPUR	UNIT ACCESS	TABLE	FIREPLACE FIRE RING	UNIT AREA & SURFACE	REMARKS
10	A C W-M	A-M C-L W-L	A C W-H	A C W-H	A-M C-L W-L	Unit in high water channel, relocate.
11	A C-H W-L	A-M C-M W-L	A C W-H	A C W-H	A C-H W-L	
12	A C W-H	A C W-M	A C W-H	A C W-H	A C-H W-L	
13	A C W	A C W	A C W-H	A C W-H	A C-H W-L	
14	A-M C-M W-L	A C-M W-L	A C W-H	A C W-H	A C-M W-L	

OLYMPIC NATIONAL FOREST

DATE 12-11-80

SITE Collins

SITE # 3.0

SITE KIND 41.1

INVENTORY OF FACILITIES
TO ACCOMMODATE DISABLED

LEGEND

A - Aged
C - Crutch-Walker
W - Wheelchair

H - High
M - Medium
L - Low
N - None

FACILITY	ACCESS	FACILITY	REMARKS
COMFORT STATION			
Vault Toilets (2)	A-H, C-H, W-L	A, C-H, W-N	Adjacent to Unit 8
Vault Toilets (2)	A-M, C-M, W-L	A, C-H, W-N	Between Units 9 & 10. Needs fill across low area.
TRAILS			
H_2O HYDRANTS			
Pitcher Pump	A, C-H, W-H	A, C, W-H	Ramp to overcome lip on concrete slab.
SIGNING			
OTHER			

Exhibit B

COST TO MODIFY TYPICAL UNIT AND ASSOCIATED FACILITIES

Parking Spur	
Average, with clearing and grubbing	$ 2,070
Selected module, minimum work - no C&G	1,260
Unit Access	
Average @ $2.00/L.F.	100
Selected module @ $1.25/L.F.	72
Table	100
Fireplace	80
Unit Modification	
Average, limited clearing, grubbing and leveling	600
Addition of surfacing	
Selected module, root and rock removal and leveling	600
Addition of surfacing	
Water Hydrant	
Average	25
Selected Module	10
Vault Toilet	12,000
Flush Toilet	
New	55,500
Modify Existing	20,000

NOTE: Costs are 1980 project costs without overhead, etc.

COST BY ALTERNATIVE
Using Typical Costs
1980 Basis

Alternative A. Continue existing practice.

The assumption is that while some facilities will be reconstructed and modified, there will be no planned program or emphasis. Therefore, while some individual facilities may accommodate the disabled, there will not be a total complement of facilities for the disabled. No modification of information centers. Routine replacement in like kind not included.

Typical Cost per Site

Parking spurs	(3) - minimum work @ 1,260' =	3,780'
Unit access	(3) " " @ 72' =	216
Table - None		
Fireplace - None		
Unit modification	(3) minimum work @ 300' =	900
Water hydrant - None		
Vault toilet - None		
Flush toilet, new	1 per 5 sites = 55,500 + 5=	11,100
24 sites @ 11,100	=	$266,400
PAOT days supplied to accommodate disabled 1/		64,500
Cost per PAOT day		$4.13
Estimated cost per R.V.D. 2/ (16,800 R.V.D.'s)3/		$3.84

1/ Coho Campground, min. program level.

2/ For all users of modified modules.

3/ 1980 R.I.M. data.

Alternative B. Modify all facilities at all sites. Through capital investment, human resource programs, volunteers and routine maintenance.

Typical cost per Site

Parking spurs	(18)	average work @ $2,070 =		$37,260
Unit access	(18)	" " @ 100 =		1,800
Table	(18)	" " @ 100		1,800
Fireplace	(18)	" " @ 80		1,440
Unit modification	(18)	" " @ 600		10,800
Water hydrant	(4)	" " @ 25		100
Vault toilet	(2)	" " @ 12,000		24,000
Flush toilet, modified 1 per 4 sites, 20,000 ÷ 4 =				5,000
Flush toilet, new 1 per 6 sites, 55,500 ÷ 6 =				9,250
				$91,450
24 sites @ $91,450				$2,194,800
PAOT days supplied to accommodate disabled 1/				378,000
Cost per PAOT day				$5.81
Cost per R.V.D. (245,500 R.V.D.'s) 2/				$8.94

1/ All sites, minimum program level.

2/ 1980 R.I.M. data.

Alternative C. Fully develop a minimum number of sites for the disabled. Modify all units and facilities within Seal Rock, Falls View, Falls Creek, and Coho Campgrounds plus Mt. Walker Viewpoint to fully accommodate the disabled.

Typical Cost per Site

Parking Spurs	(41) average work	@ $2,070 =	$ 84,870
Unit access	(41) " "	@ 100 =	4,100
Table	(41) " "	@ 100 =	4,100
Fireplace	(41) " "	@ 80 =	3,280
Unit modification	(41) " "	@ 600 =	24,600
Water hydrant	(10) " "	@ 25 =	250
Vault toilet	(1) " "	@ 12,000 =	12,000
Flush toilet, modified	2 per 5 sites	$ 40,000 ÷ 5=	8,000
Flush toilet, new	2 per 5 sites,	111,000 ÷ 5=	22,000
			$163,400
5 sites @ $163,400			$817,000
PAOT days supplied to accommodate disabled 1/			153,920
Cost per PAOT day			$5.31
Cost per R.V.D. (88,100 R.V.D. 2/			$9.27

1/ Minimum program level

2/ 1980 R.I.M. data

Alternative D. Modify a module within all sites. Select a module based on current ability to accommodate the disabled, opportunity to modify and physical impact on the area.

Typical Cost per Site

Parking spurs	(5) minimum work	@ $1,260 =		$ 6,300
Unit access	(5) " "	@ 72 =		360
Table	(5) average work	@ 100 =		500
Fireplace	(5) " "	@ 80 =		400
Unit modification	(5) minimum work	@ 300 =		1,500
Water hydrant	(2) " "	@ 10 =		20
Vault toilet	(1.5) average work	@ 12,000 =		18,000
Flush toilet, modified	1 per 6 sites	$20,000 ÷ 6 =		3,330
Flush toilet, new	1 per 24 sites	$55,500 ÷ 24=		2,312
				$32,720
24 sites @ $32,720				$785,280
PAOT days supplied to accommodate disabled 1/				123,150
Cost per PAOT day				$6.38
Cost per R.V.D. (85,800) 2/				$9.15

1/ Minimum program level, average 5 units per site.

2/ 1980 R.I.M. data.

Alternative E. Modify a module within selected sites. The following sites will be excluded: Steelhead, Slab Camp, East Crossing, Campbell Tree Grove, Chetwoot, Tenas, Wynoochee Falls, and Klahanie.

Typical Cost per Site

Parking Spurs	(5) minimum work	@ $1,260 =		$ 6,300
Unit access	(5) " "	@ 72 =		360
Table	(5) average work	@ 100 =		500
Fireplace	(5) " "	@ 80 =		400
Unit modification	(5) minimum work	@ 300 =		1,500
Water hydrant	(2) " "	@ 10 =		20
Vault toilet	(1.5) average work	@ 12,000 =		18,000
Flush toilet, modified	1 per 5 sites	$20,000 ÷ 5 =		4,000
Flush toilet, new	1 per 16 sites	$55,000 ÷ 16 =		3,470
				$34,550
16 sites @ $34,550				$552,800
PAOT days supplied to accommodate disabled 1/				100,200
Cost per PAOT day				$5.52
Cost per R.V.D. (60,785) 2/				$9.09

1/ Minimum program level, average 5 units per site.

2/ 1980 R.I.M. data.

Exhibit D

SUMMARY OF MODULE AND FACILITIES TO BE MODIFIED

Site	Module to be Modified 1/	Support Facilities
Lena Creek	Units 10, 11 & 12	2 vault toilets, pitcher pump
Hamma-Hamma	Units 8, 9 & 10	2 vault toilets, pitcher pump
Collins	Units 2, 3 & 4	2 vaults - adjacent to Unit 8 pitcher pump
Elkhorn	Units 4, 5, 6 & 7	2 vaults near Unit 8 pitcher pump
Seal Rock	Units 9, 10, 11 & 12 Units 26 & 28	Modify C.S.
Interrorem	All Units (3)	Single vault
Falls View	Units 22, 23, 24 Units 4, 5, 6	Modify C.S. 2 vault toilets
Dungeness Forks	Units 3 & 4	2 vault toilets
Mt. Walker - North - South	Trail to vista Trail to vista & vista	2 vault toilets
Rainbow	Units 3 & 4	2 vault toilets
Willaby	Units 14 & 15	Modify C.S.
Falls Creek	Units 7, 8 & 9	Modify C.S.
Brown Creek	Units 6, 7 & 8	2 vault toilets
Coho	50% of tables in each loop & picnic area	Access to waste water sumps & garbage cans
Klahowya	Units 24, 25, 26, & 27	2 vault toilets
Big Creek	Units 4, 5, 6, 7, & 8	2 vault toilets

1/ Includes parking, access to unit, unit area and surface, tables and fireplaces.

Exhibit E

REFINEMENT OF COST TO IMPLEMENT THE SELECTED ALTERNATIVE (E)

Parking Spurs				
Minimum work	29 @	$ 1,260 =		$ 36,540
Average work	1 @	2,070 =		2,070
Unit Access				
Minimum work	31 @	72 =		2,232
Average work	3 @	100 =		300
Tables	88 @	100 =		8,800
Fireplaces	53 @	80 =		4,240
Unit Modification				
Minimum work	42 @	300 =		12,600
Average work	6 @	600		3,600
Water Hydrant				
Minimum work	23 @	10 =		230
Vault Toilet	23 @	12,000 =		276,000
Flush Toilet (modification 4 @ 20,000)				80,000
				$426,612
PAOT days supplied to accommodate disabled 1/			=	106,185
Cost per PAOT day				$4.02
Cost per R.V.D. 2/ (48,307) 3/				$8.83

1/ Based on minimum program level, FY 81 actual.

2/ Reflects all users of modified units.

3/ 1980 R.I.M. data.